

Meso-Cenozoic tectonic history and modelling of the Eastern Black Sea - Western Caucasus and Forecaucasus region

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Our study concerns region of Eastern Black Sea, Western Caucasus and Western Forecaucasus. Using well and seismic data in the basins as well as geological data in the orogen area we constructed regional transects passing through the western part of the Great Caucasus orogen and both adjacent foreland basins. The subsidence history along transects was restored in the basins as well as folding/faulting/uplift history in the mountains. This allows us to establish relationships (temporal and casual) between tectonic events occurred in different parts of the studied area, namely between opening of the Great Caucasus trough and Black Sea basin and weaker extensional events in adjacent areas, compressional/inversional events in different basins, Great Caucasus collision and formation of flexural Tuapse and West Forecaucasus basins. Burial/deformation history forms a basis for thermal and fluid flow modelling, which are utilized to explain patterns of location and phase compositions of hydrocarbon pools in Western Forecaucasus basin. Lithospheric-scale geodynamic model allows to discriminate controls of Oligocene-Quaternary foreland-type subsidence of the Tuapse basin and Western Forecaucasus basin and of Pliocene-Quaternary rapid subsidence of the Black sea area